FTIR

Fourier Transform Infrared Spectrometer

- Infraed signal to remotely monitor Shinkampo stack emissions
- Only stack emissions regulated by Japanese Law

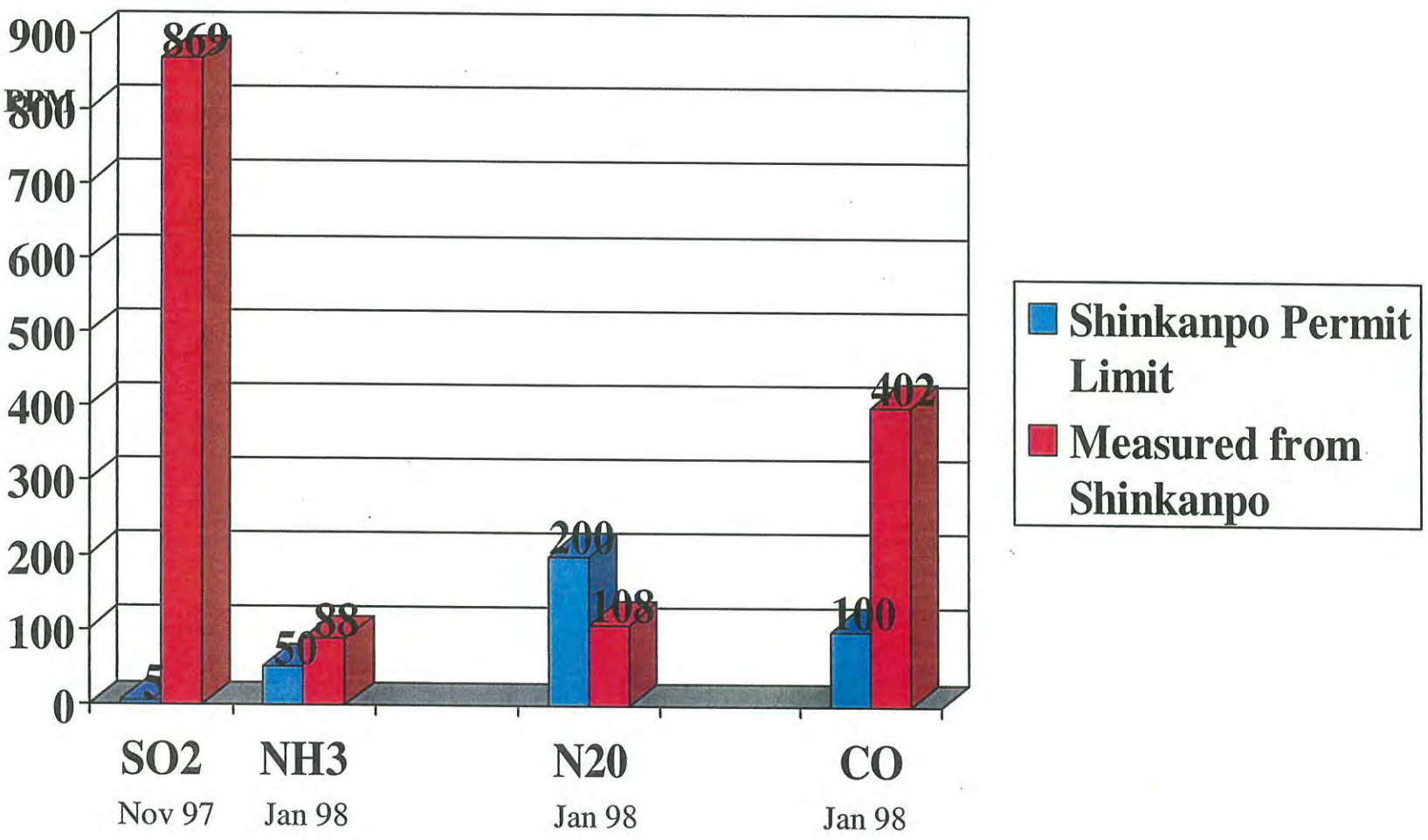
Barriers erected by Shinkampo block FTIR signal

- **Stated Shinkampo purpose is to "protect workers"**
- **GOJ lacks authority to force removal**

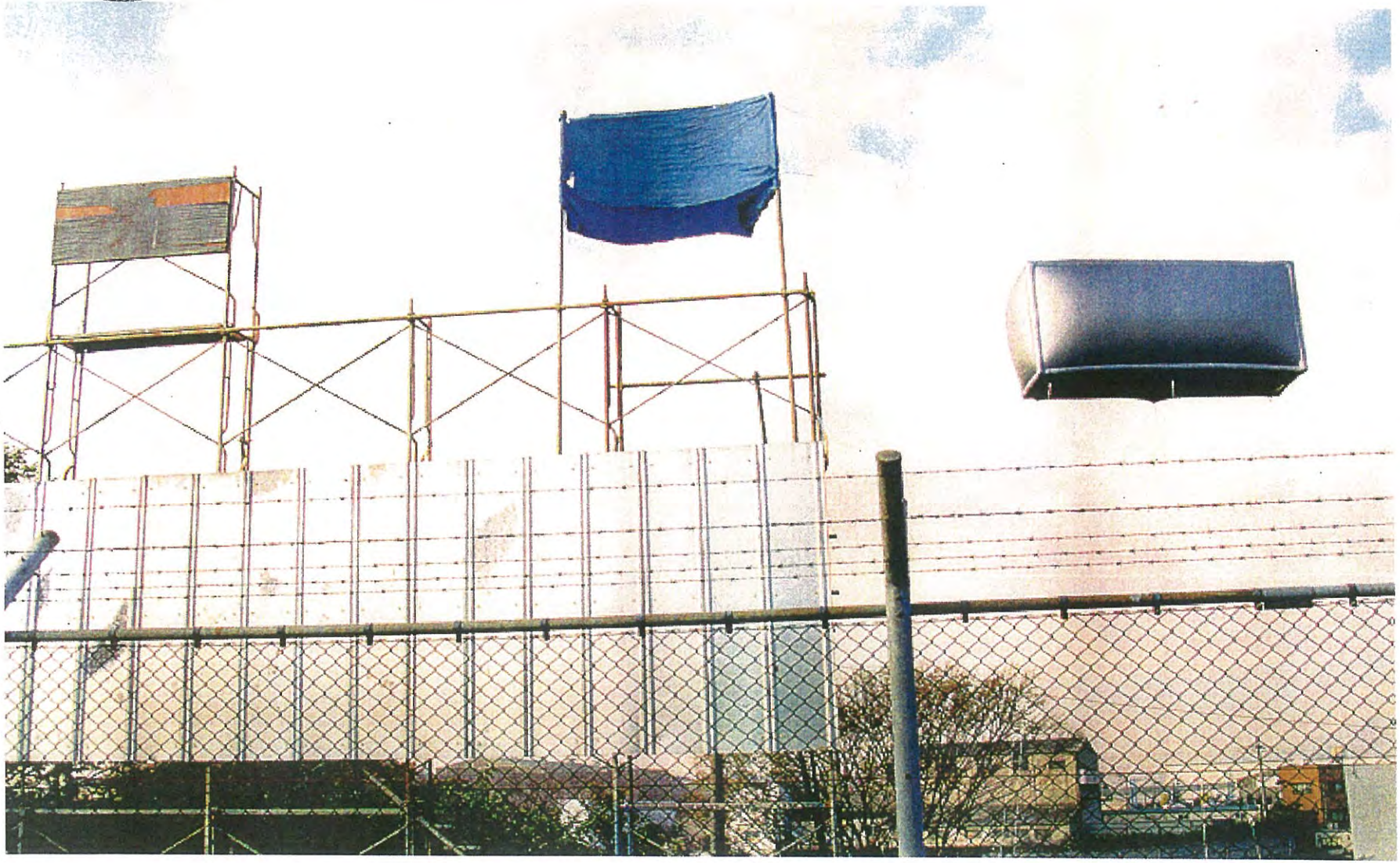
GOJ acknowledges FTIR safety

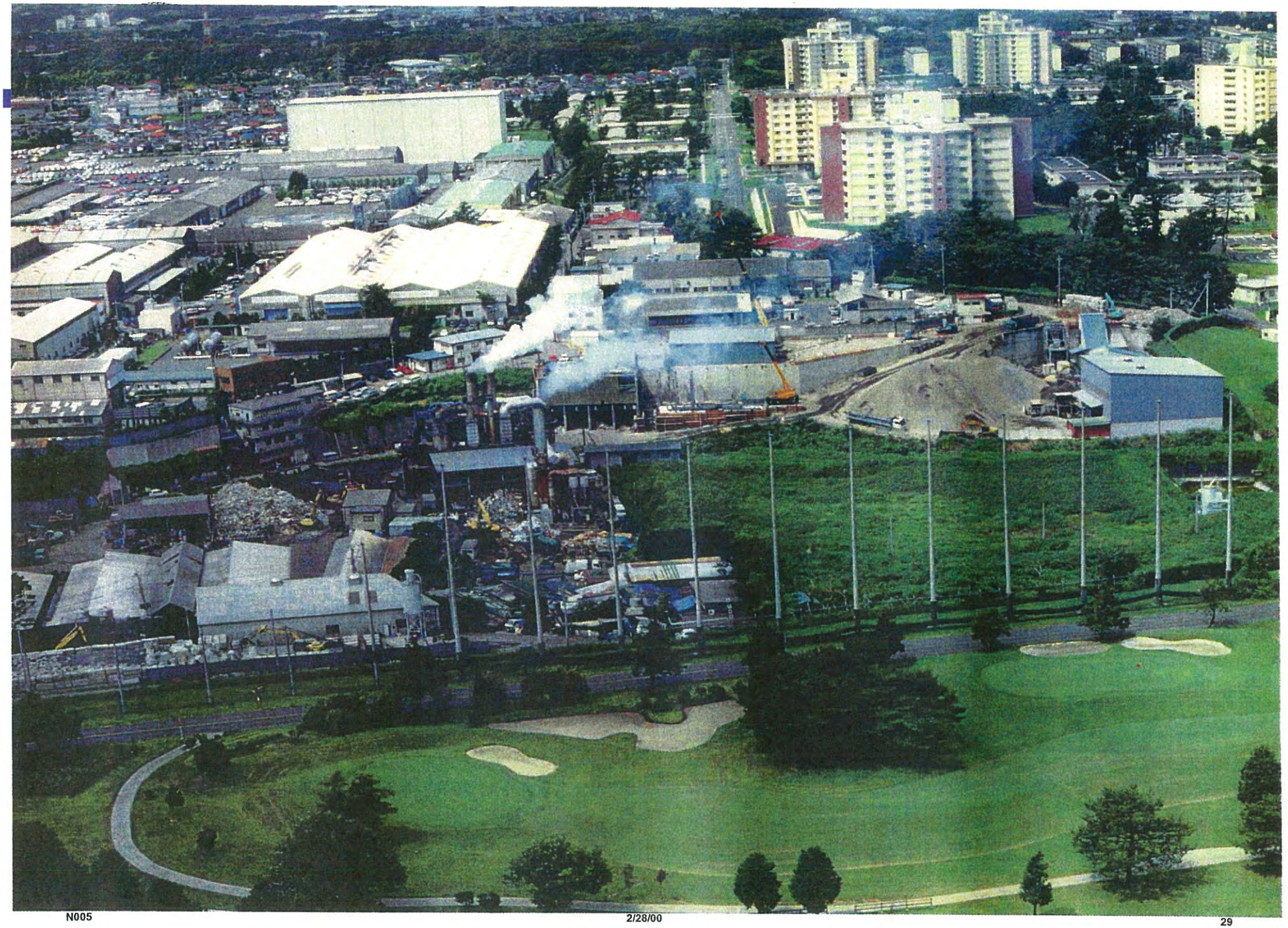
- **2 1/2 months of negotiations**

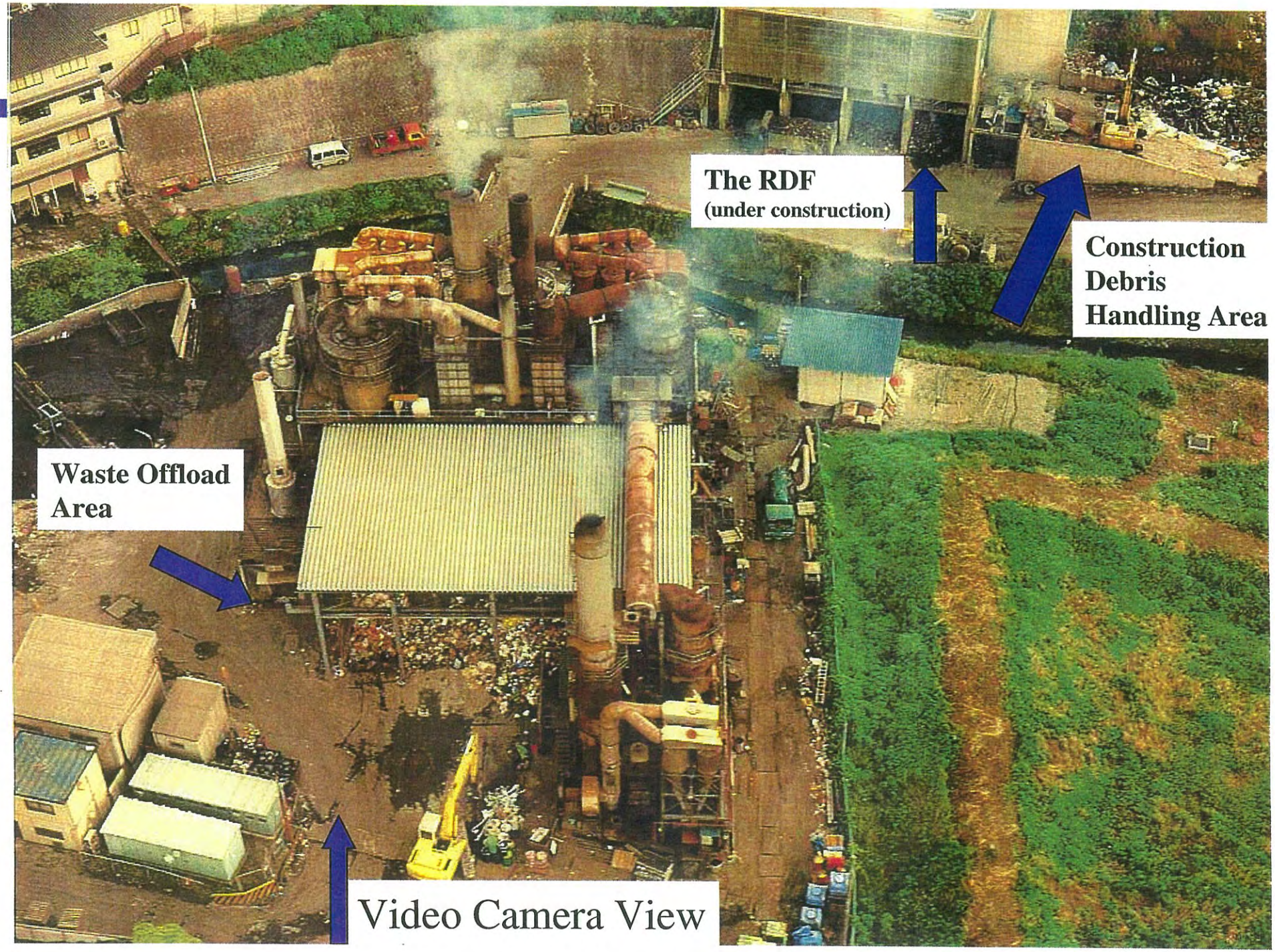
NAF Atsugi
FTIR Data



Monitoring -Shinkampo's Reaction



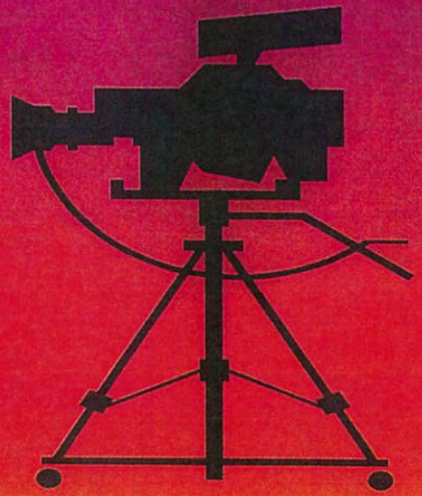



The RDF
(under construction)
Construction
Debris
Handling Area
Waste Offload
Area
Video Camera View


Standard Industry
Truck Scale

Truck Count Methodology

- Video surveillance camera aimed only at the incinerator loading area
- Count only trucks unloading combustible trash
  - separate by truck type/size
  - trucks handling construction debris not counted
- Subtract the noncombustibles removed from the burn pile



Shinkampo Throughput Calculations

Height x Width x Length (of Truck Bed) = Truck Capacity

Number of Trucks x Truck Capacity = Volume

Volume x Density = Throughput

**Density (tons/m^3):

Waste Plastic:	0.1 - 0.3
Wood Scrap:	**0.4 - 0.7**
Metal Scrap:	1.4 - 2.0
Sludge:	1.2 - 1.6
Glass/Ceramic	1.5
Construction Debris:	1.6 - 1.8

From: Ministry of Health & Welfare, New Paper on Waste Materials, page 20, Kuwahara Kazuo,

7 October 1998

Trucks Dumping into Incinerator Loading Area	
2-ton Dump Trucks	2
4-ton Dump Trucks/Compactors	17
Box Vans	0
4-ton Stakebed Trucks	0
10-ton Short Dump Trucks	8
10-ton Medium Dump Trucks	3
10-ton Long Dump Trucks	0

Trucks Removing Noncombustibles from Incinerator Loading Area	
4-ton Dump Trucks	0
10-ton Short Dump Trucks	0
10-ton Medium Dump Trucks	0

Typical Calculation - 7 October 1998

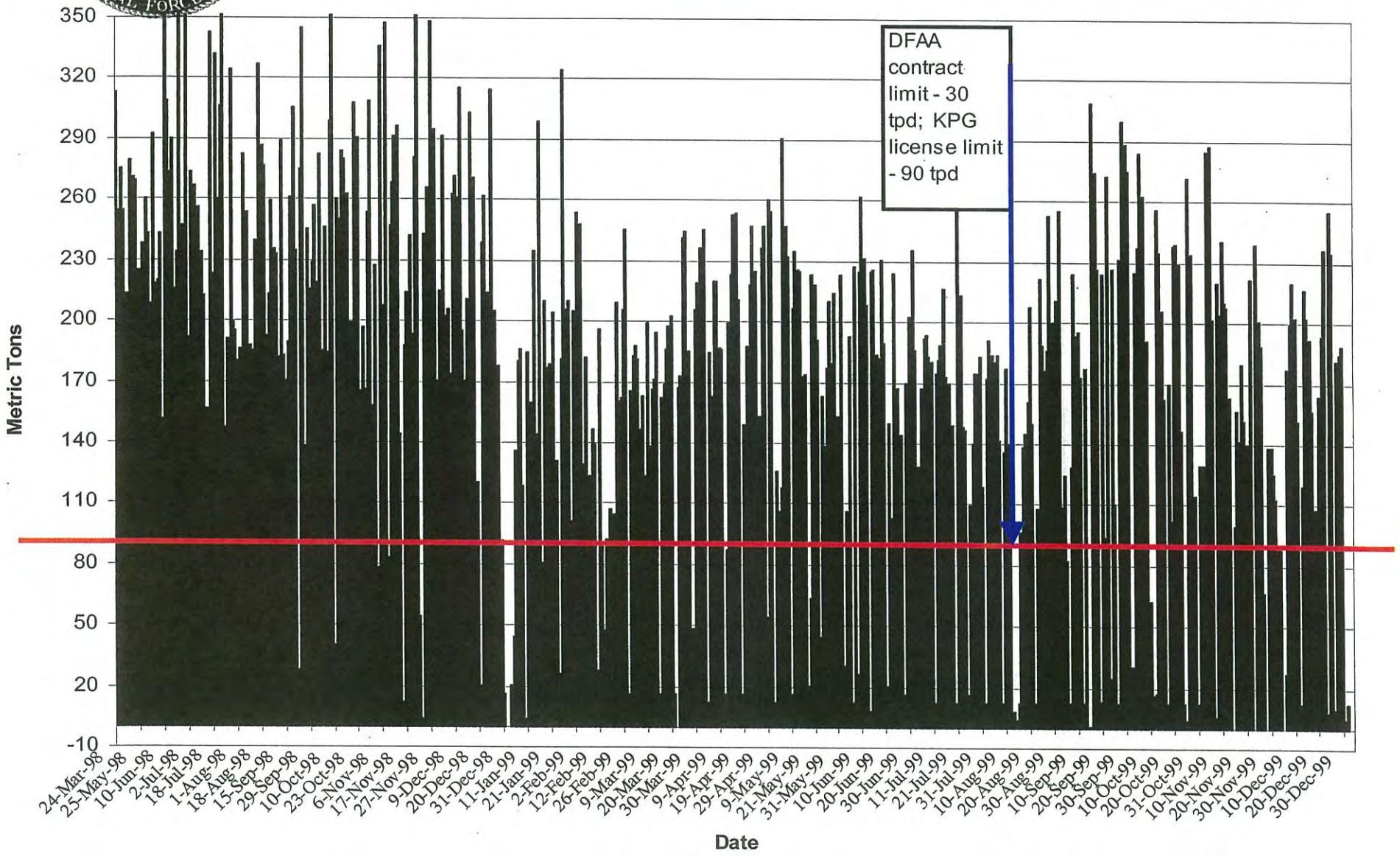
4-ton Dump Trucks
Number of Trucks = 17

Volume
Height - 1.5 Meters
Width - 1.8 Meters
Length - 3.6 Meters
Volume = 9.7 Cubic Meters

Density = 415 Kilograms per Cubic Meter

Throughput from 4-ton Dump Trucks
17 trucks x 9.7 Cubic Meters/Truck x 415 Kilograms per Cubic Meter = 68,600 Kilograms = **68.6 Metric Tons**

Shinkampo Throughput



US vs. Shinkampo Throughput Estimates

Date	US	Shin-kampo	2-ton dump	4-ton dump	Box van	4-ton stake-bed	10-ton dump short	10-ton dump medium	10-ton dump long
24 Sept. 98	275	30	3	27	0	1	11	3	1
25 Sept. 98	345	30	3	41	0	2	8	6	1
26 Sept. 98	139	30	3	28	1	0	2	0	0
28 Sept. 98	246	53	1	31	0	0	2	8	0
29 Sept. 98	216	89	1	29	0	2	4	4	0
30 Sept. 98	229	89	2	30	2	2	4	4	0

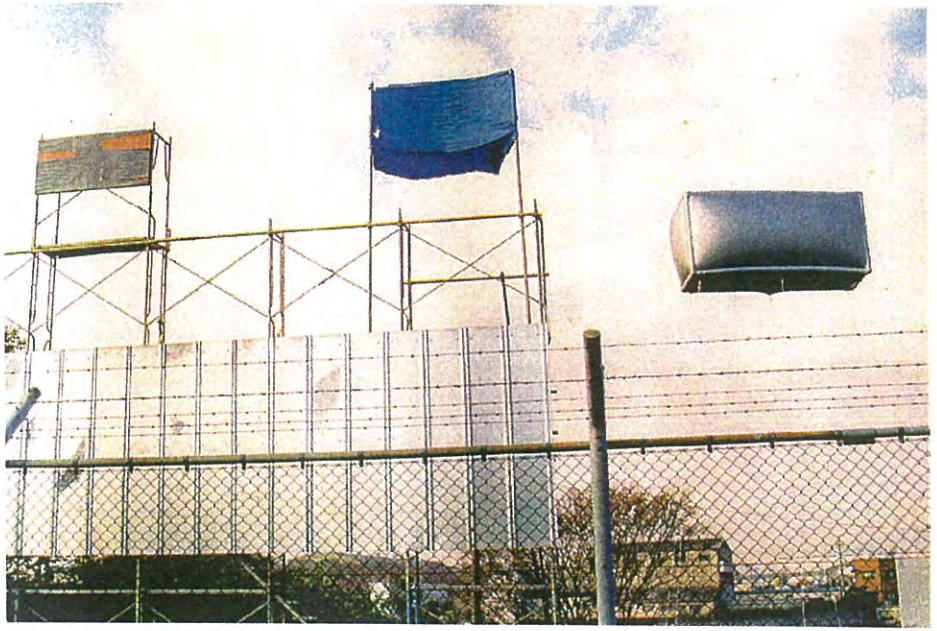
U.S. vs. Shinkampo's Crane Scale Estimates

Date	USG Estimate (TPD)	Shinkampo Estimate (TPD)	Crane Loads (number of loads)
24 Sep 98	275	30	288
25 Sep 98	345	30	297
26 Sep 98	139	30	315
90 TPD Permit Issued			
28 Sep 98	246	53	296
29 Sep 98	216	89	304
30 Sep 98	229	89	308

Why would Shinkampo use 3 incinerators for only 30 tpd?

- ✔ Increased power consumption for 3 induction fans
- ✔ Increased supplemental fuel, quench and caustic usage
- ✔ Increased wear and tear on incinerators, crane and hoist
- ✔ More plant staff
- ✔ Incinerators can only be maintained while off-line
- ✔ Less efficient operation of incinerators and APCs
- ✔ The Bottom Line: It Costs More Yen

Monitoring -Shinkampo's Reaction



KPG's Regulatory "Do Loop"

Shinkampo's dioxin impact on the ambient air found far exceeds the ambient air 0.8 pg/m3 dioxin standard

KPG issues Shinkampo an "administrative recommendation" for submission of a technical improvement plan (bag filters)

Shinkampo submits technical improvement plan

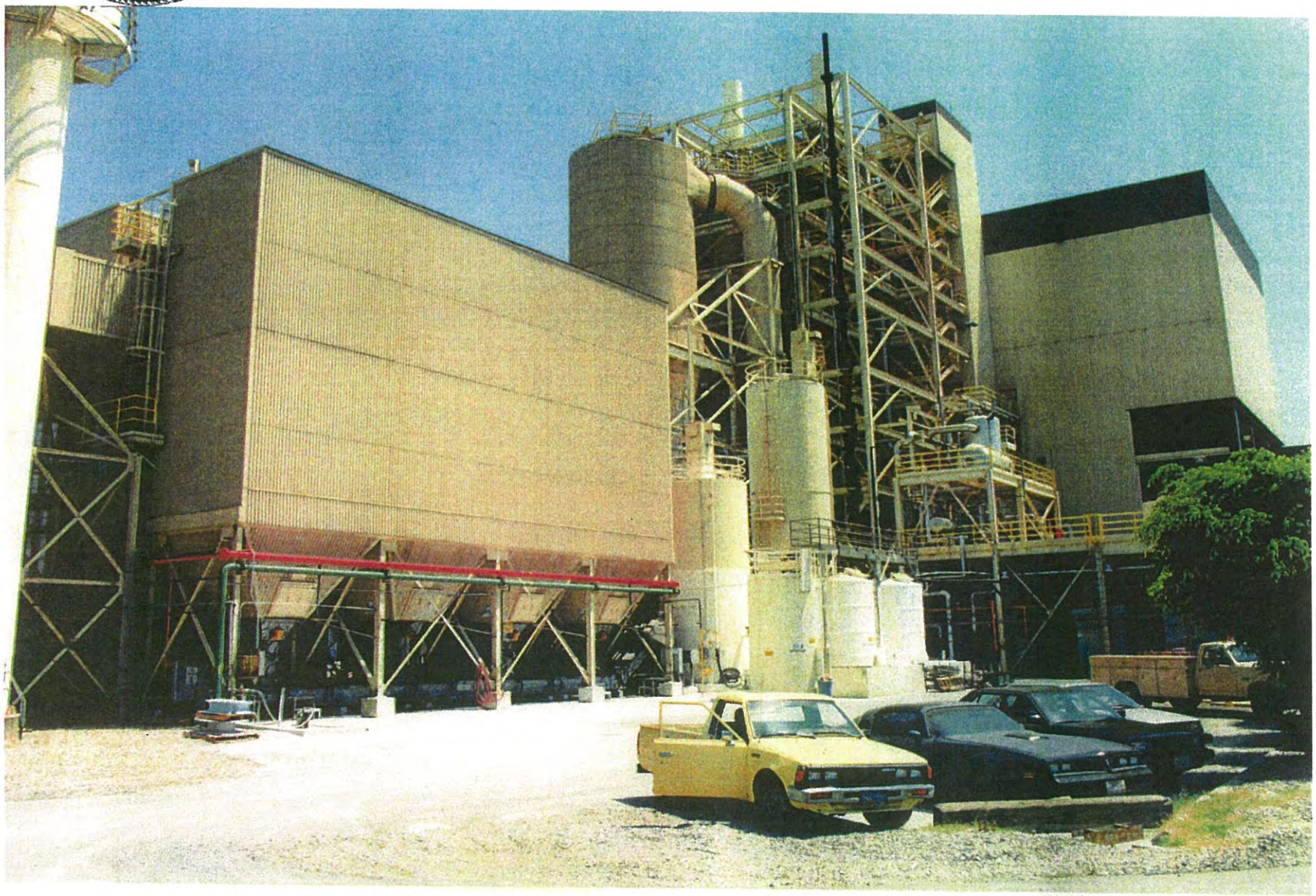
KPG accepts plan

Shinkampo installs baghouse filters

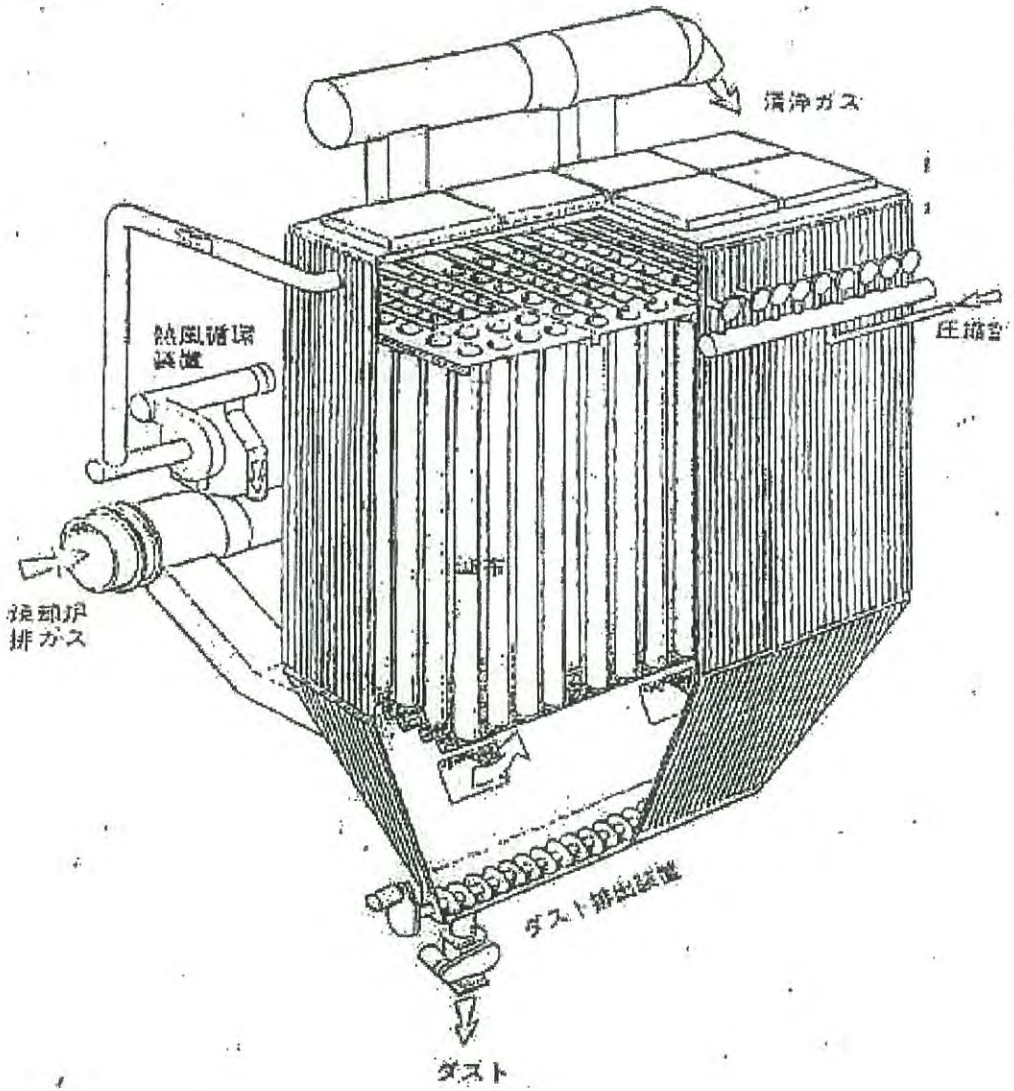
Must conduct additional monitoring to determine effectiveness of baghouse filters and/or "catch" Shinkampo bypassing the baghouse filters

Must obtain an Administrative Order to shut down the incinerators

Typical Baghouse Filter Facility



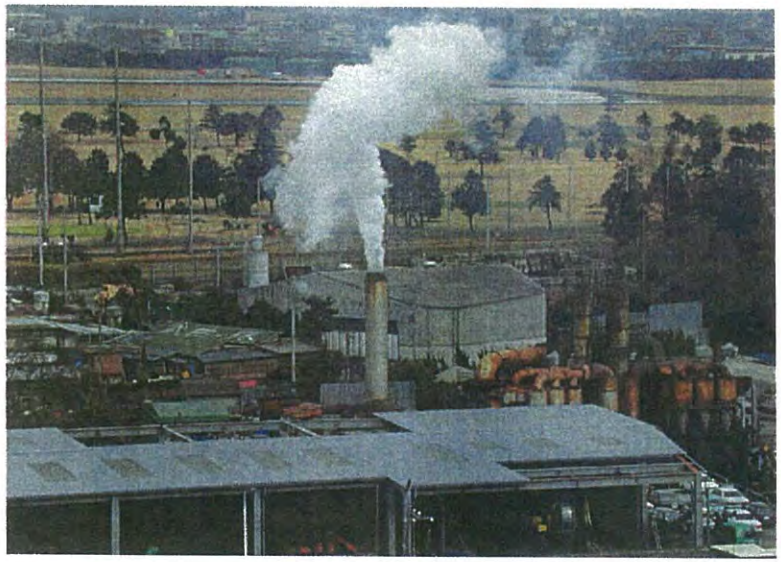
Shinkampo's Design for Baghouse Filters



Current Design is Lacking

- No carbon injection
- Small induction fan
- Uses existing (inadequate) quench
- Will do a satisfactory job removing dust

- **GOJ/KPG commence 56 days of ambient air monitoring south of Shinkampo**
- **Shinkampo shuts down No. 1 & No. 2 incinerator**



- **Maintains burn volume of approx. 30 tons/day**
- **No baghouse filter construction apparent**
- **No incinerator "repair work" apparent**

27 Jan 2000--Baghouse Filter Construction

The Perils of Relying Upon Baghouse Filters Alone to Protect NAF Atsugi

- **Expensive**
  - Approximately $1M/year cost to Shinkampo for electricity, bag replacement, additional lime, and carbon injection

- **Very Easily Bypassed**
  - Must bypass frequently throughout the day to blow down the dust collected on the bags
  - Must bypass during plant start up and shut down to prevent excessive back pressure build up
  - If only one bag is missing or burned through, unfiltered emissions follow path of least resistance through the gap

- **Shinkampo Routinely Bypasses Existing Pollution Controls**

Additional Joint Monitoring

- **Set to commence as soon as the first set of baghouse filters are installed--Late March/Early April**

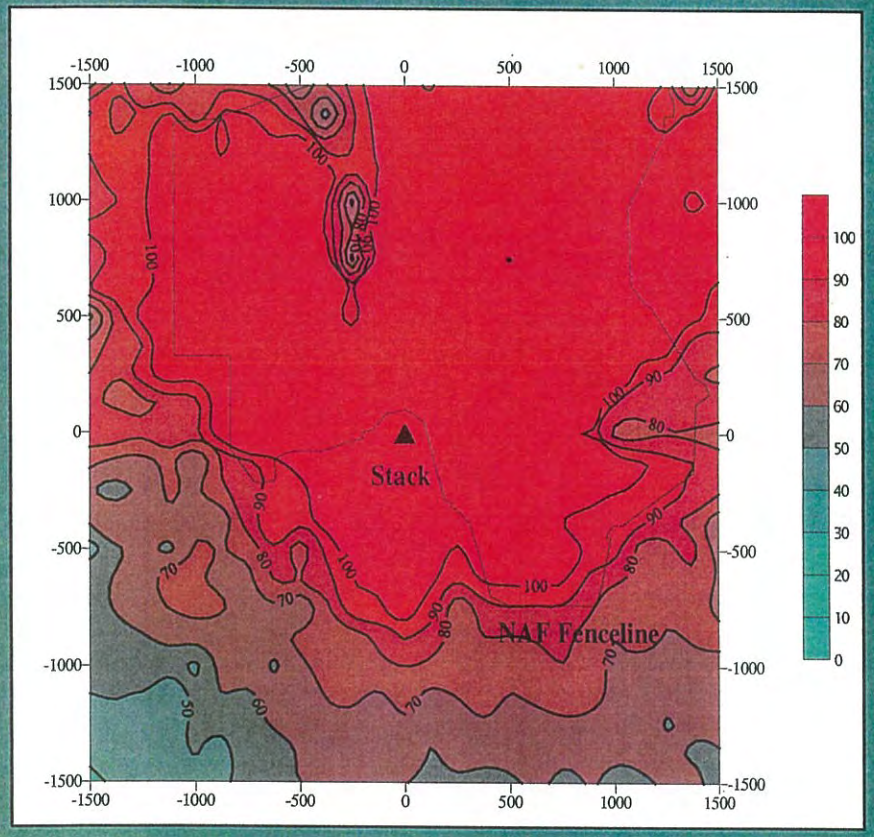
- **Same sites on NAF Atsugi, two sites off base south of the incinerator**

- **No value in starting prior to baghouse filter installation**
  - **GOJ/KPG have stated an inability to take further action outside of "administrative recommendation" for baghouse filters**
  - **likely to obtain skewed data with Shinkampo operating only one incinerator**
  - **additional "bad" data will not compel KPG to order a higher stack (both KPG and Murata state incinerator not compatible with 100-meter stack---not supported by data)**
  - **winter J/M with wind blowing offbase and only one incinerator operating will dilute previous J/M data and not provide an accurate picture of the true situation**

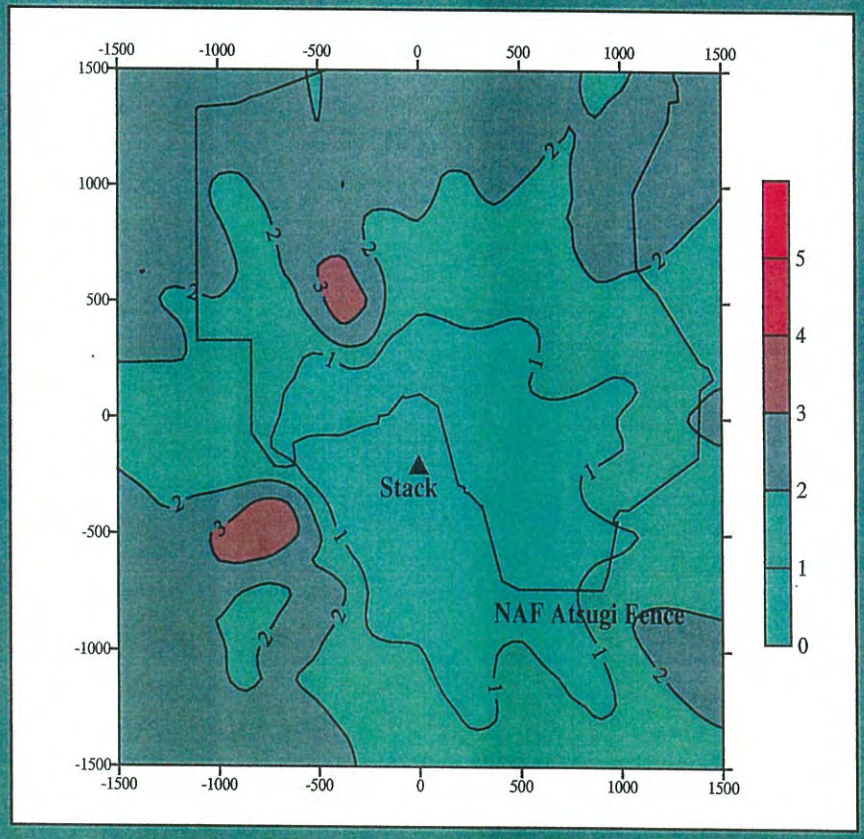

The 100 meter Solution

Why a 100-meter stack?

27-Meter Stack, 1-Hour Current Location, ug/m³



100-Meter Stack, 1-Hour New Location, 200 TPD, ug/m³



Shinkampo History

- **Sep 1998:** GOJ announces Shinkampo solution--Two Phase Plan
- **Sep 1998:** Shinkampo an issue at Clinton-Obuchi Summit
- **Oct 1998:** DFAA begins an active role with the USG on Shinkampo
- **Nov 1998:** SECDEF Cohen statement to GOJ that Shinkampo must be fixed
- **Dec 1998:** CNFJ Petition and Letter of Objection on Shinkampo burn volume
- **Dec 1998:** RDF installed and operational (Phase I of GOJ Two Phase Plan)
- **Jan 1999:** CNFJ intensifies Joint Committee push for tangible progress from GOJ
- **Feb 1999:** USG briefs GOJ on excess Shinkampo burn volume video surveillance
- **Feb 1999:** Shinkampo owner arrested for tax evasion
- **Mar 1999:** USG-GOJ discuss Joint Monitoring details
- **Apr 1999:** Winds shift, NAF Atsugi once again fumigated by Shinkampo for next 6 months
- **Apr 1999:** GOJ Joint Monitoring Plan to US/GOJ Joint Committee
- **Apr 1999:** DFAA begins 100 meter stack/baghouse filter design

Shinkampo History

- **Apr 1999:** Construction plan signed by US side of Joint Committee, GOJ does not sign
- **May 1999:** Clinton-Obuchi Summit: PM Obuchi commits to solution by Mar 01
- **Jul 1999:** Commence Joint Monitoring
- **Jul 1999:** GOJ contract with Murata for construction does not occur
- **Jul 1999:** Construction plan still not signed by GOJ side of Joint Committee
- **Aug 1999:** DFAA fails to complete construction design
- **Aug 1999:** No Ayase Planning Commission approval for DFAA construction design
- **Aug 1999:** No funding for construction
- **Sep 1999:** Shinkampo fails to commence installation of baghouse filters
- **Oct 1999 :** DFAA delivers very preliminary construction design
- **Oct 1999:** Shinkampo notifies DFAA of its refusal to permit construction of 100 meter stack
- **Oct 1999:** Joint Monitoring data released; record setting levels of dioxin found at NAF Atsugi
- **Nov 1999:** KPG announces intent to conduct own monitoring, Shinkampo modifies operations
- **Nov 1999:** KPG issues "Administrative Recommendation" to Shinkampo

Shinkampo History

- **Nov 1999:** GOJ expresses inability to close Shinkampo based on Joint Monitoring data
- **Nov 1999:** KPG expresses reluctance to revoke Shinkampo permit based on JM data
- **Nov 1999:** GOJ pressures US for additional Joint Monitoring
- **Nov 1999:** Shinkampo responds to KPG Admin Recommendation--offers to install dust collector
- **Nov 1999:** Shinkampo contracts with IHI for the installation of bag filters to remove dust
- **Dec 1999:** KPG accepts Shinkampo Improvement Plan
- **Dec 1999:** Shinkampo shuts down two incinerators & KPG/JEA begin a "joint" 56 day ambient air monitoring program
- **Jan 2000:** Preliminary site work at Shinkampo on baghouse filters